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EXAMINER

FERNANDEZ, KALIMAH

ART UNIT PAPER NUMBER

2881

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Please find below and/or attached an Office communication concerning this application or proceeding.



## **DETAILED ACTION**

### ***Election/Restrictions***

1. Applicant's election without traverse of claims 18-20 in the reply filed on 2-14-05 is acknowledged.

### ***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1,4,14-15,23, and 25 are rejected under 35 U.S.C. 102(e) as being anticipated by US Pat 6,635,880 issued to Renau.
4. Renau discloses a ribbon beam ion implantation system (see for example col.3, lines 22-26).
5. Renau discloses an ion source (10).
6. Renau discloses an extraction system (see for example col.6, line 61 extending to col.7, line 10).

7. Renau discloses a mass analyzer having a first permanent magnet (22a) and a second magnet (22b) that generate a substantially uniform magnetic field across a beam path of the ribbon-shaped ion beam to select a species from the multiple species initially present in the ribbon-shaped ion beam (see for example col.4, lines 5-19; col.6, lines 6-27).
8. As per claim 4, Renau discloses a low energy ion beam implantation (col.2, lines 6-9).
9. As per claim 14, Renau discloses the ion beam has a width of about 300 mm (see for example col.5, lines 35-37).
10. As per 15 and 23, Renau discloses an end station (50) having a wafer (col.3, lines 42-49).
11. As per claim 21, Renau discloses a method having an ion-generating step (col.6, lines 50-55).
12. Renau discloses an extraction step to form a ribbon-shaped ion beam having a short dimension and a wide dimension (see for example col.5, lines 35-43).
13. Renau discloses a selection step via a permanent magnet-based mass analyzer (see col.4, lines 20-38).

14. As per claim 25, Renau discloses the species is selected by applying a magnetic field via permanent magnets that deflects the ion beam across its short dimension (see col.4, lines 19-38).

***Claim Rejections - 35 USC § 103***

15. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

16. Claims 2, 5,9-13,16-17,22, and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Pat No 6,635,880 issued to Renau and US Pat No 6,573,517 issued to Sugitani et al.

17. Renau discloses the claimed invention except for a post-accelerator.

18. However, Sugitani et al teach the desirability of post-acceleration (see for example col.1, lines 9-58).

19. It would have been obvious to an ordinary artisan at the time of the invention to combine Renau and Sugitani et al because Sugitani et al teach improved extraction control and low energy contamination (see for example col.1, lines 40-61).

20. As per claims 9-13, Sugitani et al teach boron ions by way of example (see col.2, lines 25-31). Sugitani et al also obviously suggest other variation such as BF<sub>3</sub>, PF<sub>5</sub> and As<sub>5</sub> known in the art.

21. As per claims 16-17, 22, and 26, Sugitani et al teach predetermined voltage settings for the extraction system that dictate the extraction energy of the ribbon-shaped ion beam entering the mass analyzer (col.2, lines 1-29).

22. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Renau as applied to claim 1 above, and further in view of US Pat No. 4,695,773 issued to Veneklasen et al.

23. Renau discloses the claimed invention except for triode extraction system.

24. However, Veneklasen et al teach the desirability of a triode extraction system (col.1, lines 19-31).

25. It would have been obvious to an ordinary artisan at the time of the invention to combine Renau and Veneklasen et al because Veneklasen et al teach improved focusing (col.2, lines 3-17).

26. Claims 6-8 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Renau.

27. Renau teach the claimed invention, but does not explicitly teach a 5cm long mass analyzer, the recited magnetic field orientation, rapidly decaying fringes, and a wafer size of 300 mm.

28. However, these limitations would have been obvious to an ordinary artisan in view of Renau's disclosure. Specifically, these limitations are art-recognized result-effective variables.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kalimah Fernandez whose telephone number is 571-272-2470. The examiner can normally be reached on Mon-Tues 6:30-3:30; Wed-Thurs 8-5 and Fri.9am-6 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John R. Lee can be reached on 571-272-2477. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

KF



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